



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/610,558 | 07/05/2000 | Kiyoshi Sato | 9281/3683 | 3740 |

757 7590 06/24/2004
BRINKS/HOFER GILSON & LIONE
P.O. BOX 10395
CHICAGO, IL 60610

| EXAMINER | |
|---------------------------|--------------|
| KLIMOWICZ, WILLIAM JOSEPH | |
| ART UNIT | PAPER NUMBER |
| 2652 | |

DATE MAILED: 06/24/2004

9

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

| | | |
|----------------------|-----------------|---------------|
| | Application No. | Applicant(s) |
| | 09/610,558 | SATO, KIYOSHI |
| Examiner | Art Unit | |
| William J. Klimowicz | 2652 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 17 May 2004.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-4 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 05 July 2000 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>3</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION***Election/Restrictions***

Applicant's election without traverse of Group I, Species I in the reply filed on May 17, 2004 is acknowledged.

The Applicant's response to the Restriction Requirement included voluntarily canceling non-elected claims 4-9, in preliminary Amendment A (Paper No. 5) filed May 17, 2004, which has been acknowledged.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3 are rejected under 35 U.S.C. 102(e) as being anticipated by Rudy et al. (US 6,445,536 B1).

As per claim 1, Rudy et al. (US 6,445,536 B1) discloses a thin film magnetic head (e.g., FIG. 1O) comprising: a lower core layer (e.g., shield 100); an upper core layer (e.g., 120); at least one insulating layer (e.g., 110) positioned between the lower core layer (100) and the upper core layer (120); a track width restricting groove (e.g., 114) being formed in the insulating layer (110); and *at least one* of a lower magnetic pole layer (e.g., 116) and an upper magnetic pole

Art Unit: 2652

layer, the lower magnetic pole layer (116) continuing from the lower core layer (100) [the upper magnetic pole layer continuing from the upper core layer], and a gap layer (e.g., 118) positioned between one of the core layers (e.g., 120) and one of the magnetic pole layers (116) that opposes the core layer (120) [*or* between the two magnetic pole layers being provided in the track width restricting groove], wherein a stopper layer (e.g., 102) is placed, in a portion excluding the track width restricting groove (114), between the lower core layer (100) and the insulating layer (110), and the stopper layer (102) is formed of an insulating material (e.g., metallic Ta or Cr) having an etching rate lower than a reactive ion etching rate of the insulating layer (110) (e.g. SiO₂ or Al₂O₃).

As per claim 2, wherein the stopper layer (102) is formed to have a film thickness that is smaller than the insulating layer (110) (see, e.g., COL. 4, lines 23-26 and COL. 4, lines 3-5).

As per claim 3, wherein an etching rate of the stopper layer (102) in reactive ion etching is less than the etching rate of the insulating layer by ten times or more (e.g., etch rate for silicon dioxide is known to be at least 10-20 times greater than that of metal tantalum).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rudy et al. (US 6,445,536 B1).

See the description of Rudy et al. (US 6,445,536 B1), *supra*.

As per claim 4, Rudy et al. (US 6,445,536 B1) remains silent with respect to buffer etchant stopping layer (102) as being formed of at least one of Al₂O₃ and Si₃N₄.

Official notice is taken that etchant stopping layers as being formed of at least one of Al₂O₃ and Si₃N₄ are notoriously old and well known and ubiquitous in the art; such Officially noticed fact being capable of instant and unquestionable demonstration as being well-known.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the etchant stopping layer (102) of Rudy et al. (US 6,445,536 B1) as being conventional stopping layers formed of Al₂O₃ and Si₃N₄, in lieu of a metal.

The rationale is as follows: one of ordinary skill in the art would have been motivated to provide the etchant stopping layer (102) of Rudy et al. (US 6,445,536 B1) as being conventional stopping layers formed of Al₂O₃ and Si₃N₄, in lieu of a metal in order to a readily available hard dielectric substance not prone to wear or smearing during head manufacture, which is functionally equivalent as a stopping layer when compared to Ta or Cr, as is well known, established and appreciated in the art.

Conclusion

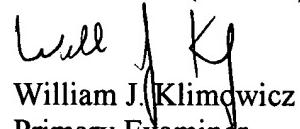
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Art Unit: 2652

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William J. Klimowicz whose telephone number is (703) 305-3452. The examiner can normally be reached on Monday-Thursday (6:30AM-5:00PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (703) 305-9687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


William J. Klimowicz
Primary Examiner
Art Unit 2652

WJK